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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/622,276      | 07/18/2003  | Hagay Cafri          | 7962 USA/CPI/ALD/PS | 4203             |

7590 07/27/2005

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EXAMINER

SAYOC, EMMANUEL

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

3746

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Tutu

**Office Action Summary**

Application No.

10/622,276

Applicant(s)

CAFRI ET AL.

Examiner

Emmanuel Sayoc

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/18/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-6, 10, 11, 13, and 17-19 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1-3 it is unclear where the vibration damping assembly is claimed to be located. Is the applicant is claiming that the vibration damping assembly is between the rigid mounting structure and the first coupling portion? If so the applicant is instructed to

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explain how this is possible since the rigid mounting structure and the first coupling portion are both at the first axial end of the pump or the inlet of the pump. Also what components on the claimed invention satisfy this limitation? To expedite prosecution the examiner interprets this claim to mean that the vibration damping assembly is coupled between the first coupling portion (at the first end or inlet) and the second coupling portion (at the midsection of the pump). Since rigid mounting structure is also at the pump inlet, the vibration damping assembly is also coupled between the rigid mounting structure (at the first end or inlet) and the second coupling portion (at the midsection of the pump).

In claim 4 line 2, the phrase "said coupling" is ambiguous as there are two couplings introduced in claim 3.

In claim 6 line 4, it is unclear what is being referred to in the phrase "being coupled between said pump." Is it the second connection structure, its first end, or its second end? Furthermore in line 4, it is unclear whose end is being referred to in the phrase "and its first end." As there is a plurality of components with first and second ends, the applicant is instructed to clearly state which component is being referred to in every reference of first or second end.

In claim 6 it is unclear where exactly the second connection structure is coupled. Applicant is instructed to rephrase the language for clarity. Is the second connection structure coupled between the pump inlet and the second end of the first connecting structure? In either case the applicant is instructed to identify what he considers the second connection structure and what components couple it therebetween.

Claims 5, 6, and 10 are unclear. In claim 5 a first flexible connection structure is recited, in claim 6 a second rigid connection structure is recited, and in claim 10 a second flexible connection structure is recited. Having a second rigid connection structure implies there is a first rigid connection structure, although none is claimed. Since the claims all depend from each other, the second connection structure cannot be both flexible and rigid. The examiner therefore assumes there are at least a single rigid connection structure, and at least two flexible connection structures. Applicant is instructed to clarify this ambiguity. Finally in claim 10 line 2, it is unclear which second connection structure is being referred to in the phrase "said second structure."

In claim 11 if the first connection member is between the rigid mounting structure (at the inlet of the pump) and the second connection member, it is unclear how the second connection member is between the first axial end at the inlet of the pump and the first connection member.

The second connection structure (153) is flexible and coupled between the pump (1) at said first axial end and the first connection structure (151a).

In claim 13, it is unclear what is meant by the phrase "connected for extraction by atmospheric pressure. It is interpreted that the bellows is exposed to atmospheric pressure.

Claim 17 recites the limitation "said major portion" in line 2. There is insufficient antecedent basis for this limitation in the claim.

In claims 18 and 19, line 2, the phrase "said coupling" is ambiguous as it is unclear what the applicant is referring to, the first coupling, the second coupling, or both?

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claim 1-4, 18, 19, 22, 23, 24, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Adamietz et al. (U.S. 6,814,550 B1).

In Figure 2, Adamietz et al. teach a gas turbo pump assembly for coupling to a chamber port (14) comprising a turbo pump (1) having a pump body (2) with an external

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surface (shown not enumerated) and a center axis that defines a first axial end (top) and a second axial end (bottom) of the pump (1), and a pump inlet port (5). The pump inlet port (5) is disposed at the first axial end of the pump (1) and is coupled to the chamber port (14). The pump (1) includes an exit port (not shown, column 2 line 6) disposed proximate to the second axial end of the pump (1). A vibration damping assembly (7, 8, 9, 17,18) is disposed to enclose a significant portion of the pump body (2) in a nested arrangement. The vibration damping assembly (7, 8, 9, 17,18) has a first opening (shown at the top of the assembly) adapted for coupling to the inlet port (5) of the pump, and a second opening adapted to receive a substantial portion of the pump (1).

The turbo pump is coupled to a reducing section (23), which is a rigid mounting structure at the pump inlet port (5) via the vibration damping assembly (7, 8, 9, 17, 18).

The vibration damping assembly (7, 8, 9, 17,18) is coupled between the rigid mounting structure (23) and a first coupling portion (flange 24) at the first axial end of the pump (1), and a second coupling portion (flanges 17,18) on the pump body (2) disposed between the first axial end and the second axial end of the pump.

The second coupling portion (24) comprises a radially extended structure integrally formed (rigidly connected to for one rigid assembly) on the body (2).

The vibration damping assembly (7, 8, 9, 17,18) comprises a first connection structure (7) being a flexible damping structure having a first end (top) and a second end (bottom), and is coupled between the rigid mounting structure (23) at the first end and the pump (1) at the second end.

The vibration damping assembly further comprises a second rigid connection structure (rotor and shaft assembly 3) that is a rigid structure having a first end (top) and a second end (bottom). The second rigid connection structure is coupled between the pump (1) at the first pump inlet end and the second end of the first connecting structure (7) at the second end of the second rigid connection structure (rotor and shaft assembly 3). The rotor and shaft assembly (3) is a connection structure in that it connects the shaft connects the motor rotor to the impeller blades of the pump.

The vibration damping assembly (7, 8, 9, 17,18) further comprises a second flexible connection structure (8) having a first end (top) and a second end (bottom) coupled between the pump (1) at said first axial end and the second end of the first connecting structure (7) at said second end of the second connection structure (8). Both the first connection structure (7) and the second flexible connection structure (8) are flexible and are adapted to reduce both compression and extraction forces.

The first coupling portion (24) comprises a ring extended around the body (2).

The second coupling portion comprises a plurality of flanges (18, 17) disposed around the body (2).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:



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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (Figures 1 and 2), hereinafter (APA), and in view of Adamietz.

In Figures 1 and 2 of the APA, a gas turbo pump assembly (100) for coupling to a chamber port (180) comprising a turbo pump (100) having a pump body (shown not enumerated) with an external surface (shown not enumerated) and a center axis (C) that defines a first axial end (top) and a second axial end (bottom) of the pump (100), and a pump inlet port (162). The pump inlet port (162) is disposed at the first axial end of the pump (100) and is coupled to the chamber port (180). The pump (100) includes an exit port (104) disposed proximate to the second axial end of the pump (100). A

vibration damping assembly (150, 153, 160, 170) is disposed to between the inlet (162) and the chamber port (180).

The applicant's admitted prior art Figures 1 and 2 differ from the claimed invention in that there is no teaching of the vibration damping assembly being disposed to enclose a significant portion of the pump body in a nested arrangement.

Adamietz et al. in Figure 2, teaches an analogous vacuum pump (1) with a vibration damping assembly (7, 8, 9, 17, 18). As seen in Figure 2, the vibration damping assembly (7, 8, 9, 17, 18) is disposed to enclose a significant portion of the pump body in a nested arrangement to drastically reduce the total height of the pump assembly and achieve a compact design (column 2 lines 53-57). Therefore it would have been obvious to one of ordinary skill in the art at time the invention was made to modify the APA (Figures 1 and 2) device by, incorporating the nested arrangement of the vibration damping assembly, as taught by Adamietz et al., in order to advantageously reduce the total height of the pump assembly and achieve a compact design. While preserving the structure taught by the APA Figure 2, in order to achieve this combination, it would have been obvious that the vibration damper in the APA needs to be enlarged radially to accommodate a substantial portion of the pump (100) as suggested by Adamietz et al. Figure 2. Furthermore it would have been obvious to one of ordinary skill in the art that the bottom end of the vibration damper assembly needs to be anchored to the mid section of the pump body, as taught by Adamietz et al. in Figure 2.

The pump (APA 100) is coupled to a rigid mounting structure (APA 170, 180) at the pump inlet port (within 180) via the vibration damping assembly (150, 151, 153, 160, 170).

The vibration damping assembly (APA 150, 151, 153, 160, 170) is coupled between the rigid mounting structure (APA 170, 180) and a first coupling portion (APA 170, 180) at the first axial end of the pump (APA 100), and a second coupling portion (APA 102, 151a, 160) on the pump (APA 100) body disposed between the first axial end and the second axial end of the pump (APA 100).

The second coupling portion (APA 102, 151a, 160) comprises a radially extended structure (APA 102) integrally formed on the body.

In the combination, the vibration damping assembly (APA 150, 151, 153, 160, 170) comprises a first connection structure (APA 150) being a flexible damping structure having a first end (top) and a second end (bottom), and is coupled between the rigid mounting structure (APA 170, 180) at the first end and the pump (APA 100) at the second end.

In the combination, the vibration damping assembly (APA 150, 151, 153, 160, 170) further comprises a second rigid connection structure (APA 151b) that is a rigid structure having a first end (top) and a second end (bottom). The second rigid connection structure (APA 151b) is coupled between the pump (APA 100) at the first pump inlet end and the first end of the first connecting structure (APA 150) at the second end of the second rigid connection.

The vibration damping assembly (APA 150, 151, 153, 160, 170) also comprises a flexible bellows (APA 153) exposed to atmospheric pressure.

In the combination the vibration damping assembly (APA 150, 151, 153, 160, 170) further comprises a second flexible connection structure (APA 153) having a first end (top) and a second end (bottom) coupled between the pump (APA 100) at said first axial end and the second end of the first connecting structure (APA 150) at said second end of the second flexible connection structure (APA 153). Both the first connection structure (APA 150) and the second flexible connection structure (APA 150) are flexible and are adapted to reduce both compression and extraction forces.

In the combination the vibration damping assembly (APA 150, 151, 153, 160, 170) comprises a first connection structure (APA 151a, and b) and a second connection structure (APA 153). The first connection structure (APA 151a, and b) is a rigid support structure having a first end and a second end, and is coupled between a rigid mounting structure (APA 170, 180) at the first end and the second connection structure (APA 153) at the second end. The second connection structure (APA 153) is flexible and coupled between the pump (APA 100) at said first axial end and the first connection structure (APA 151a).

In the combination above, the exit port (APA 104) is disposed proximate the second axial end of the pump (APA 100). As to not hinder the function of the vibration damping assembly it would have been obvious to one of ordinary skill in the art at the time the invention was made to configure the vibration damper assembly to not cover the exhaust port (APA 104).

The body (APA shown not enumerated) external surface further comprises an axial portion defining a side surface and an end portion (side wall and bottom of the pump body). The end portion is substantially radially extended from the center axis (APA C) to the axial portion and defining a bottom portion (APA 105) adapted for receiving facilities connections (APA 110).

The pump facilities (APA 110) connected through the bottom portion (APA 105) comprise at least an electrical connection.

With respect to the span of the significant portion being between 50% and 70% of an external side surface of the body, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA (Patents) 1250, 156 F.2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; Allen et al. v. Coe, 77 App. D.C. 324, 135 F.2d 11, 57 USPQ 136.

The vibration damping assembly (APA 150, 151, 153, 160, 170) defined by the first connection structure (APA 150) and the second connection structure (APA 153) is substantially cone shaped.

The first coupling portion (APA 170) comprises a ring extended around the body.

The second coupling portion (APA 160, 151a) comprises a plurality of flanges (APA 151a, 102) disposed around the body.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to further show the state of the art with respect to pump vibration dampers.

U.S. Pat. 6,899,529 B2 to Ishikawa et al., 4,835,972 to Tugal et al., 6,867,521 B2 to Beyer et al., and 6,575,713 B2 to Ohtachi et al. – teach analogous vacuum pumps as in the claimed invention with vibration dampeners similar to the applicants admitted prior art.


U.S. Pat. 6,619,911 B1 to Englander et al., 4,363,217 to Venuti, 4,526,015 to Laskaris, and 4,352,643 to Iijima, teach various vacuum pumps and various means of vibration damping.

***Contact Information***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Sayoc whose telephone number is (571) 272 4832. The examiner can normally be reached on M-F 8-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on (571) 272-4444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Emmanuel Sayoc  
Examiner  
Art Unit 3746

ECS